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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/881,234
Filing Date: June 14, 2001
Appellant(s): BLAIR ET AL.

Christopher B. Kilner
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 1/11/06 appealing from the Office action mailed 1/21/05.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,862,325 B1 REED et al. 1-1999

SMITH et al. "BCM Search Launcher--An Integrated Interface to Molecular Biology Data Base Search and Analysis Services Available on the World Wide Web", Genome Research, Volume 6, 1996, pages 454-462.

ALTSCHUL et al. "Basic Local Alignment Search Tool", Journal of Molecular Biology, Volume 215, Number 3, pages 403-410.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-23 are rejected under 35 USC 112, 2nd paragraph. Claims 1, 4, 6-13, and 18-23 are rejected under 35 USC 103(a). These rejections are set forth in a prior Office Action, mailed 1/21/05.

Claims Rejected Under 35 U.S.C. § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

Claims 1 (line 18) and 13 (lines 22-23) recite the phrase "said task definition" which is rejected due to the lack of clear antecedent basis. Several task definitions are mentioned previously in these claims so it is unclear to which one this phrase is referring. Claims 2-12 and 14-23 are also rejected due to their direct or indirect dependency from claims 1 and 23.

Claim Rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made

> to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. (e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4, 6-13, and 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (Genome Research, 1996, Volume 6, pages 454-462) in view of Altschul et al. (Journal of Molecular Biology, 1990, Volume 215(3), pages 403-410 and Reed et al. (P/N 5,862,325).

Smith et al. describe an integrated set of World Wide Web pages that organize nucleic acid sequence searches and analyses available by function and provide a single entry for related searches (abstract) which represents a "system" which is defined by the online Merriam-Webster dictionary as an integrating group of items forming a unified whole as well as an organization forming a network especially for distributing something serving a common purpose. This system provides a method of performing different searches for a given query sequence (query dataset N) with various sequence databases (i.e. BLAST database which represents subject dataset M) (abstract; page 455, col. 2, first paragraph; and page 457, col. 2, first paragraph) which represents a method of comparing datasets. Smith et al. describe nucleic acid sequence search services,

involving genomic databases in Table 1, as stated in instant claims 12 and 23. Smith et al. describe a sequence input field for nucleic acid searches (page 455, col. 1, third paragraph to col. 2, first paragraph) which is well known in the art to be divided into nucleotides (data elements). The presence of an input field suggests that there is a size limitation with a specified range, which is necessarily more than zero but less than infinity. Smith et al. describe BLAST nucleic acid sequence searches in Table 1, including a dbEST DB. This EST (Expressed Sequence Tag) database subset represents a division of the BLAST database (subject dataset) which has a size within a specified range, as stated in instant claims 1 and 13, since EST is defined by online Genome Glossary as a short (size) strand of DNA that is part of a cDNA molecule. Smith et al. describe using the Internet allowing for communication between remote sites and to promote a distributed information space by filling out a HTML form (user input query) on a web page (at a master CPU (central processing unit)), launching a search at a remote site (slave CPU), returning results for further processing by the BCM Search Launcher server (another slave CPU), and presenting results to the user (from original master CPU) (page 459, col. 2, third paragraph). As the master-slave is defined by online Webopedia as "an architecture in which one device (master) controls one or more other devices (the slaves), the description provided in the sentence above represents sending information to a master CPU of a master-slave distributed computing platform (via query input) by sending data elements referenced by a task definition to said slave CPU, performing each task (i.e. comparison search and further processing) on a slave CPU and returning task results for each task to said master CPU. Smith et al. describe using a plurality of servers (slave CPUs) that can return results to the user's system (master CPU) with additional links to auxiliary information that was initiated from a single entry page (abstract and page 455,

col. 1, third paragraph). Smith et al. describe a user (at master CPU) selecting task definitions such as specified search parameters, choosing a search server (an executable element capable of performing comparisons) with a form tag, selecting a function type to submit the form containing user input (all available data elements and task definitions) to an external program (an executable element capable of performing comparisons), and using a sequence name/identifier (query and subject data element identification/descriptor) (page 459, col. 2, third paragraph to page 460, col. 1, third paragraph). Smith et al. describe specifying one or more query parameter values (page 460, col. 1, fourth paragraph) which represents more than one data element dataset that can be a query or subject. Smith et al. describe generating a BLAST report for each query data element as seen in Figure 2 (3). Smith et al. describe concatenating results (page 454, col. 2, first paragraph and page 457, col. 2, first paragraph) from all BLAST reports (page 461, col. 1, second paragraph) to produce a text file identical to a Blastall run of query and subject datasets as seen in Figure 2 and Figure 2 caption (page 459), as stated in instant claims 10, 11, 21, and 22. Smith et al. describe storing seed point and sum-set membership of each alignment in BLAST as seen in Figure 2 (third window from top on left side), as stated in instant claim 8. Smith et al. describe storing results from tasks into results files including query and subject sequence data and metadata corresponding to the task that the results came from, links to sequences that are similar to sequence matched in database search (metadata for the subject sequence) (page 455, col.2 , last paragraph to page 456, col. 1 and 2), partial subject sequence data corresponding to the subject bounds of the significant alignment result, and other results data (see Figure 2), as stated in instant claims 9 and 20. Smith et al. describe a list (index) of information about query and subject sequence (i.e. third and fourth windows from top left as well bottom right window in

Figure 2), including bounds information for start and stop of subsequences (i.e. third window from top left of Figure 2), storing data including hits, scores, identities, and positives (data quantifying fulfillment of significance criteria for a significant match (i.e. third window from top left of Figure 2), and storing an efficiently encoded representation of alignment between said bounds corresponding to a high scoring pair (see alignment in third window from top left of Figure 2), as stated in instant claims 7 and 19. Smith et al. do not describe compressing and uncompressing data, determining a number of tasks as n_N x n_M, or looping processes.

Altschul et al. describe compressing the database by packing 4 nucleotides into a single byte and using a table to delimit the boundaries between adjacent sequences (page 405, col. 1, lines 37-40). Altschul et al. describe beginning with a matrix of similarity scores for all possible pairs of residues (page 404, col. 1, paragraph 3) which represents determining the number of tasks for an entire comparison of two datasets. Altschul et al. describe performing BLAST with two random sequences (data sets N and M) of lengths *m* and *n* in order to determine the probability of finding a segment pair with a score greater than S (cut off score, page 404, col. 2, second paragraph) where $y=Kmn\ e^{-\lambda S}$ (page 405, col. 2, equation 1 and fourth paragraph) which represents determination of a number of tasks or points in a matrix in a comparison of two datasets (i.e. N and M) involving a multiplication of data elements n_N x n_M, as stated in instant claims 1 and 13. Altschul et al. describe the sequence segments can be of any length (page 404, col. 1, lines 34-36) or certain short sequences thus having a specified range (page 404, col. 2, lines 61-63). Altschul et al. use a list, or index, of all 12-mers in a query sequence in one example (page 405, col. 1, lines 33-35). Altschul et al. do not describe uncompressing data or looping processes.

Reed et al. describe a system and methods that coordinate the transfer of data, metadata, and instructions between databases to control and process communications (abstract and col. 1, lines 10-14) which represents a separation or stripping of metadata from data. Reed et al. describe this transfer of metadata and methods allow for the control by the provider and consumer of the types and contents of information subsequently transferred (abstract) which represents storing minimal information if so desired. Reed et al. describe compressing database, database query, or other file format using PKZIP (col. 14, lines 41-47 and col. 53, line 1) that represents packing data into an efficient structure using a redundancy reduction data compression method. Reed et al. describe corresponding data, metadata, and instructions in the provider program can control and automate decryption and decompression of data (col. 14, lines 47-51). Reed et al. describe communication networks that allow both parties to control, filter, store, index, and process communications from each other (col. 7, lines 63 to col. 8, line 2) which represents creating an index in an uncompressed manner. Reed et al. describe querying a provider database and loops through each communication object instance (data) which is to be published and which are read (col. 32, lines 28-35) which represents a looping of data (i.e. query sequences) to perform setup, preprocessing, and table generation. Reed et al. describe the program begins a second loop through each recipient and using such recipient attributes and methods to generate and transmit a communications object instance for all recipients (col. 32, lines 35-42) which represents a looping of other data such as the looping of subject sequences.

Smith et al. state sequence analysis services are extremely useful for molecular biologists to allow access to the ever-expanding sequence data bases without requiring copious local data base storage, frequent data base updates, the cost of expensive and sophisticated hardware and

software, and the cost and effort of continuous system maintenance (page 454, col. 1, first paragraph). Smith et al. state that the individual WWW server sites scattered throughout the Web hinders their efficient use (page 455, col. 1, first paragraph). Smith et al. state the BCM Search Launcher addresses these limitations by providing an improved interface to simplify access and improve analysis resources (page 455, col. 1, second paragraph).

A skilled artisan at the time of the invention would have been motivated to make improvements to analysis server sites, such as that stated by Smith et al. (page 455, col. 1, first paragraph) by adding additional features to further simplify access and improve analysis resources (page 455, col. 1, second paragraph). It would have been obvious to one having ordinary skill in the art at the time the invention was made to compress data (as stated by Altschul et al. and Reed et al.) and to use looping processes (as stated by Reed et al.) in the method of Smith et al., where the motivation would have been to offer enhanced, integrated, easy-to-use, and time-saving techniques to a large number of useful molecular biology database search and analysis services for organizing and improving access to these tools for genome researchers worldwide (Smith et al., page 459, col. 1, third paragraph to col. 2, first paragraph).

Thus, Smith et al. in view of Altschul et al. and Reed et al. make obvious and motivate the limitations in claims 1, 4, 6-13, and 18-23.

(10) Response to Argument

Appellants' arguments, filed 1/11/06, in the Appeal Brief have been fully considered, but are not persuasive regarding the 35 USC 112, 2nd paragraph, rejection for "said task definition" and the 35 USC 103(a) rejection.

Grounds 1

Appellants admit the claim language for "said task definition" is not necessarily as clear as it could be. This statement is agreed with as it is unclear to which task definition is being referred as several task definitions are previously mentioned in instant claims 1 and 13. Appellants state that when practicing the invention, multiple task definitions are sent to multiple CPUs, but each task definition has the same properties and is sent only when the data elements it references are available. This statement is found unpersuasive because several task definitions are previously mentioned in the claims which do not necessarily have the same properties, as such a limitation is not present in the instant claims. Despite various recitations of "tasks, "task definitions" (2X), "a task definition for each task", and "all parts of a task definition" prior to claiming "said task definition", Appellants submit that their claim language is sufficiently clear to refer to the immediately preceding form of the term "all parts of a task definition". This statement is found unpersuasive as "said task definition" is equally applicable to be referring to other "task definition" recitations previously found in the claims, and "said task definition" does not clearly differentiate the limitation to only include the immediately preceding form of the phrase that Appellants intend as antecedent basis. Appellants state that the Examiner never suggested claim language to Appellants to improve the clarity or precision of the language used. This statement is found confusing as one cannot reasonably suggest claim language when it is

unknown which previously mentioned "task definition" Appellants intend. Appellants submit that the claims were improperly rejected in direct contravention of MPEP § 2173.02. This statement is found unpersuasive as there is no clarity and precision when "said task definition" may be referring to more than one previously mentioned task definitions. Appellants cite MPEP 2173.05(e) which states a lack of clarity could arise where it is unclear as to what element the limitation was making reference. This section of the MPEP documents the problem as several task definitions have been previously set forth, therefore it is unclear as to which one Appellants intend "said task definition" to be referring. This section of the MPEP states if two different levers were recited earlier in the claim, the recitation of "said lever" in the same or subsequent claim would be unclear. Appellants submit that no such problem exists in the instant claims, because the repeated use of a "task definition" does not suggest or refer to different task definitions. This statement is found unpersuasive as there is nothing in the instant claims that would lead one to reasonably conclude that the task definitions were all the same. Appellants refer to Ex parte Porter, 25 USPQ2d 1144, 1145 (Bd. Pat. App. & Inter. 1992) ("controlled stream of fluid" provided reasonable antecedent basis for "the controlled fluid") which does not appear to be relevant to the instant application as Ex parte Porter deals with claim scope issues, not multiple previous recitations of the rejected phrase, as in the instant claims. Appellants' arguments are deemed unpersuasive.

Appellants argue that the Examiner erroneously alleges that "'said task definition' is equally applicable to be referring to other 'task definition' recitations previously found in the claims". This statement is found unpersuasive as there are multiple 'task definition' recitations found in these claims (i.e. claim 1, lines 8, 10, 16, 17). Appellants argue that this misrepresents

the claim language as there is only one other recitation of "task definition", the one that occurs in the term "a task definition for each task" which inherently is related to plural task definitions. This statement is found unpersuasive as there are multiple task definition recitations, as described above and not just the one on line 16, as stated by Appellants. Appellants argue that all previous recitations in the claims refer to plural task definitions since the claim defines "tasks" as plural, mentions "task definitions" twice as plural, and recites "a task definition for each task". This statement is found unpersuasive as the recitation of "tasks" in plural form in claim 1, line 6, is not a definition. Referring to plural task definitions early in the claim and then referring to "said task definition" later in the claim does not clearly indicate which task definition is being referenced. Appellants argue that it is disingenuous that the Examiner never suggested claim language to improve the clarity of the language. This statement is found unpersuasive as the Examiner stated that the confusion lies with the phrase "said task definition", wherein the term may refer to any one of several "task definition" recitations in the claims. It is up to the Appellants to clarify which "task definition" is to be the antecedent basis for the term in question. Appellants submit that the phrases "all parts of" and "data elements referenced by" are clearly referring to the same task definition. This statement is found unpersuasive as there are multiple task definitions present in the claim and the claims do not set forth any indication that all of the task definitions are the same. Appellants argue that the Examiner's Answer fails to understand that the ultimate reasoning for a rejection under 35 USC 112 based upon a "lack of antecedent basis" is, in fact, based on the scope of the claim. This statement is found unpersuasive as the ultimate reasoning in a lack of antecedent basis is whether each phrase rejected for this reason clearly refers back to a particular entity previously recited in the claims.

When a claim such as instant claim 1 recites several task definitions in plural as well as singular form, and then recites "said task definition", one skilled in the art cannot determine which particular previously recited "task definition" is being referenced.

Grounds 2

Appellants summarize the criteria necessary to establish a *prima facie* case of obviousness, including motivation to combine the prior art references, a reasonable expectation of success, and a teaching of every limitation from the prior art. Appellants argue that none of these criteria have been met in the previous office action. This statement is found unpersuasive for the reasons to be discussed below. Appellants argue that there is no suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the search launcher interface of Smith et al. or combine it with Altschul et al. and Reed et al. This statement is found unpersuasive because motivation has been set forth in the office action, mailed 6/30/04, and reiterated in the final office action, mailed 1/21/05. It is reiterated that the motivation to combine references includes making improvements to analysis server sites, such as that stated by Smith et al. (page 455, col. 1, first paragraph) to further simplify access and improve analysis resources (page 455, col. 1, second paragraph). Therefore, the Examiner maintains that it would have been obvious to one having ordinary skill in the art at the time the invention was made to compress data (as stated by Altschul et al. and Reed et al.) and to use looping processes (as stated by Reed et al.) in the method of Smith et al., where the motivation would have been to offer enhanced, integrated, easy-to-use, and time-saving techniques to a large number of useful molecular biology database search and analysis services

wherein the motivation for organizing and improving access to these tools for genome researchers worldwide is found in Smith et al. (page 459, col. 1, third paragraph to col. 2, first paragraph), as previously set forth. It is noted that Appellants argue that there is no motivation to combine references but fail to negate the motivation described above or offer reasons as to why it might be considered improper. Therefore, the motivation is still deemed proper.

Appellants state that MPEP 2141.02 requires the invention to be considered as a whole. Appellants summarize their invention and argue that none of the prior art references mention distributed computing. This statement is found unpersuasive as the instant claims do not recite the phrase "distributed computing" but rather a CPU of a master-slave distributed computing platform (i.e. instant claim 1, lines 7-8). The "system" definition can be interpreted to represent such a platform in the Smith et al. reference. Furthermore, Appellants' argument is found unpersuasive as the terms have been broadly and reasonably interpreted. As stated in MPEP 2111,

> During patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." In re Hyatt, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000).

Furthermore, in MPEP 2111.01 (I)[R-2] states:

> THE WORDS OF A CLAIM MUST BE GIVEN THEIR "PLAIN MEANING" UNLESS THEY ARE DEFINED IN THE SPECIFICATION
> While the claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allow. In re American Academy of Science Tech Center, F.3d, 2004 WL 1067528 (Fed. Cir. May 13, 2004).
> This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

It is only when the specification provides definitions for terms appearing in the claims that the specification can be used in interpreting claim language. In re Vogel, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970).

Appellants argue that the Office Action erroneously looks to Merriam-Webster for the definition of "system" instead of looking to the broadest reasonable interpretation consistent with the specification. Appellants argue that the Merriam-Webster definition of "system" is not consistent with the distributed computing platform disclosed in the specification. This statement is found unpersuasive as no clear and concise definition of "distributed computing" was set forth in the specification. It is also noted that limitations in the specification are not to be automatically applied to the claim limitations. Therefore, broad reasonable interpretations of the terms are appropriate, such as from dictionary definitions.

As stated in MPEP 2111.01 (II),

ACTV, Inc. v. The Walt Disney Company, 346 F.3d 1082, 1092, 68 USPQ2d 1516, 1524 (Fed. Cir. 2003) (Since there was no definition given for the term "URL" in the specification, the term should be given its broadest reasonable interpretation and take on the ordinary and customary meaning attributed to it by those of ordinary skill in the art; thus, the term "URL" was held to encompass both relative and absolute URLs.)

If extrinsic reference sources, such as dictionaries, evidence more than one definition for the term, the intrinsic record must be consulted to identify which of the different possible definitions is most consistent with applicant's use of the terms. Brookhill-Wilk 1, 334 F. 3d at 1300, 67 USPQ2d at 1137; see also Renishaw PLC v. Marposs Societa ' per Azioni, 158 F.3d 1243, 1250, 48 USPQ2d 1117, 1122 (Fed. Cir. 1998) ("Where there are several common meanings for a claim term, the patent disclosure serves to point away from the improper meanings and toward the proper meanings."). If more than one extrinsic definition is consistent with the use of the words in the intrinsic record, the claim terms may be construed to encompass all consistent meanings. Tex. Digital, 308 F.3d at 1203, 64 USPQ2d at 1819. See also< Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342, 60 USPQ2d 1851, 1854 (Fed. Cir. 2001).

Appellants refer to MPEP 2141.02 which requires that the prior art be considered as a whole, including portions that teach away from the invention. Appellants argue that Smith et al., as a whole, teaches against the present invention in teaching the batch system that processes various sequence searches serially one at a time instead of in parallel at multiple slave CPUs as found in the present invention. This statement is found unpersuasive as the instant claims do not recite parallel use limitations.

Appellants argue that Altschul et al. teach away from the instant invention by teaching dataset-by-dataset comparison on a single machine. This statement is found unpersuasive as Smith et al. teach multiple embodiments, including the provision of an interface for Unix and Macintosh computers and a direct connection to the Internet (abstract and page 461, second column) which represents the ability to use multiple computers. In addition, Smith et al. describe using a plurality of servers that can return results from multiple searches to the user's system (abstract and page 455, col. 1, third paragraph). In the instant rejection, Altschul et al. is relied upon for a teaching of data compression and division of a dataset into n_N x n_M elements, not for teaching of master/slave CPUs. Smith et al. provide the teaching for multiple (master/slave) processors, as set forth above. The data processing of Altschul et al. would be reasonably expected to be successfully performed on any number of computers, or on the Internet, since Smith et al. teach data processing and sequence comparison on the Internet and multiple computers. As one of ordinary skill in the art would reasonably expect success in combining Smith et al. and Altschul et al., the fact that Altschul et al. does not specifically disclose multiple computers is not a teaching away; i.e. a teaching that Altschul's sequence analysis would not be successful if performed on the multiple computers of Smith et al.

Appellants argue that the Reed et al. reference borders on the ridiculous with nothing to do with bioinformatics or dataset comparisons. This statement is found unpersuasive as the Reed et al. reference deals with computer data, an essential component of bioinformatics. Indeed, bioinformaticists routinely obtain information from computer references and journals, as can be seen in the Altschul et al. references section at the end of their article. Those of ordinary skill in bioinformatics are well versed in computerized analysis and computation, as supported by both Smith and Altschul et al. Appellants argue that the compression in column 57 of Reed et al. is for word processing documents like PKZIP, not databases. It is noted that Reed et al. disclose compressing databases in column 14, lines 41-47. Additional reference was made in column 53, not column 57. Other compression algorithms preferred by the provider may be used (i.e. SIT) or the next most preferred format (as stated in col. 52, line 67 to col. 53, lines 1-6).

Appellants state the motivation to combine references is completely unrelated to the claim limitations. It is not agreed that the motivation is completely unrelated to the claim limitations, but it is also noted that the reasons to combine references need not be the same motivations as those set forth by Appellant.

Appellants argue that one of ordinary skill in the art could not reasonably expect to find the Appellants' invention for comparing large datasets or processing them in parallel over a network with the cited prior art. This statement is found unpersuasive as the instant claims do not recite large datasets or parallel processing.

Appellants state that various limitations, namely those listed in instant claim 1, are not described by Smith et al. This statement is found unpersuasive as the 35 USC 103 rejection stated above addresses every limitation as found in the prior art references. Limitations not

described by Smith et al. are described by either Altschul et al. or Reed et al. Appellants argue that Smith et al.'s selection of a sequence to "clip and paste" into the HTML input form is not a division of a query dataset N, no datasets are divided, no tasks are determined, and no elements are sent to a master CPU. These statements are found unpersuasive as the limitations are taught by the prior art, as set forth above and reiterated. Appellants state that no tasks are determined by Smith et al.; however, this is not a limitation of the instant claims, and it is unclear whether Appellants might be referring to task definitions or the performance of tasks. Regarding the other limitations mentioned by Appellants, Smith et al. teach a dbEST database in Table 1, which is a subset and represents a division of the larger BLAST database. Also, Smith et al. teach performing tasks and returning the tasks to a user/master CPU at page 459.

Appellants state the other references fail to disclose any of the limitations missing by Smith et al. This statement is found unpersuasive as all of the references combined describe the claimed invention as detailed in the rejection above.

Claim 4

Appellants argue that the prior art teaches the use of redundancy reduction data compression, but not the stripping, packing, creating, and compressing steps. This statement is found unpersuasive as Appellants are stating allegations without factual support. The prior art teaches these steps, as reiterated below:

Reed et al. describe a system and methods that coordinate the transfer of data, metadata, and instructions between databases to control and process communications (abstract and col. 1, lines 10-14) which represents a separation or stripping of metadata from data.

Reed et al. describe compressing database, database query, or other file format using PKZIP (col. 14, lines 41-47 and col. 53, line 1) that represents packing data into an efficient structure using a redundancy reduction data compression method.

Reed et al. describe communication networks that allow both parties to control, filter, store, index, and process communications from each other (col. 7, lines 63 to col. 8, line 2) which represents creating an index in an uncompressed manner.

Altschul et al. describe compressing the database by packing 4 nucleotides into a single byte and using a table to delimit the boundaries between adjacent sequences (page 405, col. 1, lines 37-40).

Claims 6 and 18

Appellants argue that the prior art fails to teach the uncompressing, looping, and storing steps. This statement is found unpersuasive as Appellants are stating allegations without factual support. The prior art teaches these steps, with examples reiterated below:

Reed et al. describe this transfer of metadata and methods allow for the control by the provider and consumer of the types and contents of information subsequently transferred (abstract) which represents storing minimal information if so desired. Reed et al. describe compressing database, database query, or other file format using PKZIP (col. 14, lines 41-47 and col. 53, line 1) that represents packing data into an efficient structure using a redundancy reduction data compression method. Reed et al. describe corresponding data, metadata, and instructions in the provider program can control and automate decryption and decompression of data (col. 14, lines 47-51). Reed et al. describe communication networks that allow both parties to control, filter, store, index, and process communications from each other (col. 7, lines 63 to

col. 8, line 2) which represents creating an index in an uncompressed manner. Reed et al. describe querying a provider database and loops through each communication object instance (data) which is to be published and which are read (col. 32, lines 28-35) which represents a looping of data (i.e. query sequences) to perform setup, preprocessing, and table generation. Reed et al. describe the program begins a second loop through each recipient and using such recipient attributes and methods to generate and transmit a communications object instance for all recipients (col. 32, lines 35-42) which represents a looping of other data such as the looping of subject sequences.

Claims 7 and 19

Appellants argue that the prior art fails to teach the storing steps. This statement is found unpersuasive as Appellants are stating allegations without factual support. The prior art teaches these steps, with examples reiterated below:

Reed et al. describe communication networks that allow both parties to control, filter, store, index, and process communications from each other (col. 7, lines 63 to col. 8, line 2)

Reed et al. describe this transfer of metadata and methods allow for the control by the provider and consumer of the types and contents of information subsequently transferred (abstract) which represents storing minimal information if so desired.

Smith et al. describe storing results from tasks into results files including query and subject sequence data and metadata corresponding to the task that the results came from; links to sequences that are similar to sequence matched in database search (metadata for the subject sequence) (page 455, col.2 , last paragraph to page 456, col. 1 and 2), partial subject sequence data corresponding to the subject bounds of the significant alignment result, and other results

data (see Figure 2), as stated in instant claims 9 and 20. Smith et al. describe a list (index) of information about query and subject sequence (i.e. third and fourth windows from top left as well bottom right window in Figure 2), including bounds information for start and stop of subsequences (i.e. third window from top left of Figure 2), storing data including hits, scores, identities, and positives (data quantifying fulfillment of significance criteria for a significant match (i.e. third window from top left of Figure 2), and storing an efficiently encoded representation of alignment between said bounds corresponding to a high scoring pair (see alignment in third window from top left of Figure 2), as stated in instant claims 7 and 19.

Claim 8

Appellants argue that the prior art fails to teach the storing a seed point and sum-set membership for each alignment of BLAST. This statement is found unpersuasive as Appellants are stating allegations without factual support. The prior art teaches this step, with examples reiterated below:

Smith et al. describe storing seed point and sum-set membership of each alignment in BLAST as seen in Figure 2 (third window from top on left side), as stated in instant claim 8.

Claims 9-10 and 20-21

Appellants argue that the prior art fails to teach the storing task results in a task result file step. This statement is found unpersuasive as Appellants are stating allegations without factual support. The prior art teaches this step, with examples reiterated below:

Smith et al. describe storing results from tasks into results files including query and subject sequence data and metadata corresponding to the task that the results came from, links to sequences that are similar to sequence matched in database search (metadata for the subject

sequence) (page 455, col.2 , last paragraph to page 456, col. 1 and 2), partial subject sequence data corresponding to the subject bounds of the significant alignment result, and other results data (see Figure 2).

Claims 11 and 22

Appellants argue that the prior art fails to teach the concatenating results from all BLAST reports. This statement is found unpersuasive as Appellants are stating allegations without factual support. The prior art teaches this step, with examples reiterated below:

Smith et al. describe concatenating results (page 454, col. 2, first paragraph and page 457, col. 2, first paragraph) from all BLAST reports (page 461, col. 1, second paragraph) to produce a text file identical to a Blastall run of query and subject datasets as seen in Figure 2 and Figure 2 caption (page 459).

Appellants' arguments are not deemed persuasive for the reasons given above, therefore the rejection is maintained.

Reply to Examiner's Response to Arguments

Grounds 1, 2, 3

These replies will not be addressed as these rejection have been withdrawn.

Grounds 5

Appellants argue that Smith et al. only suggests an improved interface with batch processing that teaches against the distributed processing of the present invention. This statement is found unpersuasive as Smith et al. teach a distributed computing platform, wherein

the phrase is broadly interpreted. If the reference teaches the limitation, it cannot be teaching away from the limitation.

Appellants state that the present claims define a distributed computing platform as a whole, while the cited prior art does not. This statement is conclusory and unpersuasive without any sound reasoning set forth to support such an assertion.

Appellants argue that the interpretation of the claimed "master-slave distributed computing platform" is clearly inconsistent with the specification, in contravention with MPEP 2111. This statement is a conclusory allegation and unpersuasive without any sound reasoning set forth to support such an assertion.

Appellants argue that "parallel use" is addressed in the claims as a whole. This statement is found unpersuasive as such claim language is not recited in the instant claims.

Appellants argue that Smith et al. fail to teach or suggest that any dataset-to-dataset comparison is performed on more than one machine. This statement is found unpersuasive as Smith et al. describe performing searches for a query sequence with various databases (abstract, page 455 to 457) which represent comparing datasets. Smith et al. describe an integrated set of World Wide Web pages (abstract) which represents a system including a network for distributing. Smith et al. describe using the Internet for communication between remote sites and promoting a distributed information space by filling out a HTML form (user input query) on a web page and launching a search at a remote site and then returning results for further processing to the BCM Search Launcher server (page 459, col. 2, third paragraph). Since Smith et al. describe dataset comparisons at multiple sites, the other references need not describe the same limitations.

Appellants argue there is no reason to combine Reed et al. with bioinformatics references. This statement is found unpersuasive as those of ordinary skill in the bioinformatics art are well-versed in pure data analysis, and routinely apply such analysis where applicable, as seen, for example, in the reference listing of Altschul et al., which includes journal articles from non-biological journals as well as biological journals.

Appellants state the quoted portions of the Office Action merely repeat the unsupported contentions in a long narrative that fails to match claim limitations with specific portions of the prior art. This statement is found unpersuasive as the cited passages in the Smith et al. reference describe the limitations of the claimed invention except for compressing and uncompressing data as well as looping processes. As set forth above, Smith et al., in view of Altschul et al. and Reed et al. make obvious all of the limitations of instant claims 1, 4, 6-13, and 18-23.

Appellants argue that it is unclear why it would be desirable to modify Smith et al. with any secondary reference when Smith et al. already include desirable features. It is noted that Smith et al. provide motivation regarding a desirability of an improved interface which is adequate motivation and that it does not matter which reference provides the motivational statement for a 35 USC 103(a) rejection. Appellants again refer to their arguments based on MPEP 2141.02. These arguments are again deemed unpersuasive for the same reasons given above. Appellants argue that the Examiner's Answer did not interpret "distributing computing" or "distributed computing platform", but rather "system". It is noted that a system is recited in instant claims 13-23. Furthermore, the "system" definition given by Merriam-Webster addresses elements of an integrated group of items forming a network especially for distributing something

serving a common purpose which further explains Smith et al.'s integrated set of World Wide Web pages and CPUs (i.e. abstract and page 459, col. 2, third paragraph) representing a "distributed computing platform" when interpreted broadly and reasonablly. Appellants argue that the initial Examiner's Answer, mailed 7/13/05, confirms that it is Smith et al. has been interpreted instead of interpreting the language of the claims. It is noted that Smith et al. has been used as a reference that encompasses certain limitations of the instant claims. The Merriam-Webster online dictionary definition clarifies the term "system" so that it is clear how Smith et al.'s example of a system can be interpreted broadly and reasonably, as is clearly set forth in the rejection. Appellants argue that the initial Examiner's Answer, mailed 7/13/05, erroneously alleges that the instant claims do not recite parallel use limitations. This statement is found unpersuasive as the instant claims do not literally recite "parallel use". Appellants argue that the Examiner's Answer fails to address the argument that Smith et al. is merely a client-server system for providing a search launcher WWW interface and merely provides access to existing WWW services on remote servers. This statement is found unpersuasive as Smith et al. do not need to address every limitation in a 35 USC 103(a) rejection. Appellants continue to summarize Smith et al. and state it does not solve the problems existing in the prior art. It is noted that all of the limitations recited in the instant claims can be found in one of the three references which have been combined with motivational statements. It is further noted that Smith et al. do not need to solve the problems existing in the prior art in order to be used as a prior art reference. Appellants argue that with respect to their argument regarding Altschul et al., as a whole, teaches away from the present invention by teaching dataset-to-dataset comparison on a single machine, the initial Examiner's Answer, mailed 7/13/05, apparently argues that the

primary reference Smith et al. teaches "the ability to use multiple computers". This statement is found unpersuasive as the Examiner's Answer was addressing which reference (Smith et al.) mentioned using different computers in response to Appellants' arguments. It is further noted that there is nothing stated in the Altschul et al. reference that would prevent the limitations relied on (see 35 USC 103(a) rejection above, i.e. compressing a database) to be used in multiple computers. Appellants argue that the Examiner's Answer erroneously alleges that Altschul et al. teach "division of a dataset into n_N x n_M elements" and does not suggest dividing the task for different computers to solve. It is noted that Smith et al. describe the multiple computer aspect of the instant invention. Appellants argue that the cited equation relates to the probability of finding a segment pair and has nothing to do with a multiplication of n_N x n_M elements. This statement is found unpersuasive as the equation $y\text{-}Kmne^{-\lambda S}$ represents determining a number of tasks or points in a matrix in comparison of two data sets involving two types of elements (see 35 USC 103(a) rejection above) in a broad and reasonable interpretation of this limitation. Appellants argue that Altschul et al. do not teach or suggest any subdivision of these methods for handling larger datasets. Appellants are reminded that not every limitation must be addressed by a single reference in a 35 USC 103(a) rejection. Appellants argue that they don't understand how the "looping processes" of Reed et al. relate to the instant claims 6 and 18 as Reed et al. have nothing to do with query sequences or the setup, preprocessing, or table generation used in sequence comparison. It is noted that column 32 (lines 28-42) of Reed et al. address these limitations which were interpreted broadly and reasonably to represent setup, preprocessing, and table generation via querying, looping through data which is to be published and read. Appellants argue that Reed et al. has nothing to do with computerized analysis, computation, or

master/slave computation, but rather deals with communication and processing. This statement is found unpersuasive as the Reed et al. reference was relied on for describing uncompressing data and looping processes. It is noted that Reed et al. describe methods involving databases and processing (abstract and col. 1, lines 10-14) which represent computerized analysis. It is further noted that Reed et al. need not disclose every limitation in the claims, as this is not a 35 USC 102 rejection. Appellants argue that Reed et al. do not solve problems encountered by those of ordinary skill in the art of bioinformatics. It is noted that Reed et al. do not need to solve Appellants' problems in order to be used as a prior art reference. Appellants argue that a prior art reference is analogous if the reference is in the field of Appellants' endeavor. It is noted that Reed et al. deal with computers which is a major component of bioinformatics, as does the Appellants' invention. It is noted that computer science originated before bioinformatics, so one of ordinary skill in the art would look back into the computer field for information. Appellants argue that the prior art does not teach or fairly suggest use of a master/slave distributed computing platform. This statement is found unpersuasive as Smith et al. address the limitations regarding the use of a master/slave distributed computing platform. Motivation is not needed to combine limitations within the same prior art reference, but rather to combine limitations found in different references. Appellants argue that it is unclear why one would look to data distribution and access methods of Reed et al. Appellants are directed to page 459, third paragraph to col. 2, first paragraph which provides reasoning including offering enhanced, integrated, easy-to-use, and time-saving techniques to a large number of useful molecular biology database search and analysis services for organizing and improving access to these tools for genome researchers worldwide. Appellants argue that the Examiner's Answer dismissed

their arguments regarding expectation of success for comparing large datasets or processing them in parallel over a network by stating that "the instant claims do not recite large datasets or parallel processing". This statement is found unpersuasive as the argument was addressed stating that the claims fail to recite these limitations, such that the argument is moot.

Response to Arguments for initial Examiner's Answer (mailed July 13, 2005)

Appellants argue that the Examiner's Answer's allegation that Smith et al. teach a distributed platform is again incorrect. This statement is found unpersuasive as Appellants have failed to set forth reasons why the Smith et al. reference could be reasonably and broadly interpreted in such a manner. Appellants argue that the claims already recite a "distributed computing platform" and that interpretation of the claims must be consistent the specification. This statement is acknowledged, but it is noted that when a clear and concise definition of a term or phrase in the claims is not given in the specification, this term or phrase is to be interpreted broadly and reasonably, as done with the instant application. Appellants argue that the "system" definition fails to suggest any particular arrangement of the system and that the "distributed computing platform" requires that computing is done in a "distributed, i.e. spread-out, manner". This statement is found unpersuasive as Appellants are attempting to define the phrase with an exemplification, when in reality, the phrase can be reasonably interpreted in a broader manner. Appellants argue that the concept of Smith et al. teaching a distributed computing platform is conclusory. This statement is found unpersuasive as the 35 USC 103(a) rejection has described in detail, including a "system" definition, as to how Smith et al. represents certain limitations in

the instant invention. Appellants argue that the Examiner's Answer relies upon illogical reasoning such as a dictionary definition of a term in the prior art. This statement is found unpersuasive as the dictionary definition serves to clarify what is recognized in the prior art. Appellants again summarize Smith et al. Appellants summarize the motivational statement including Smith et al.'s suggestion of an improved interface. It is acknowledged that instant claims 1 and 13 recite distributed computing platform. Appellants argue that the Examiner's Answer dismisses arguments related to "parallel use" claims. All arguments have been considered; however, as this phrase is not recited in the claims, arguments with regard to "parallel use" are not persuasive. Appellants argue that Smith et al. description is clearly not consistent with the "distributed computing platform" in the specification. Again, it is noted that failure to disclose a clear and concise definition in the specification of this phrase requires that it be interpreted broadly and reasonably without reading limitations of the specification into the claims. Appellants argue that Smith et al. fail to teach any particular dataset-to-dataset comparison. This statement is found unpersuasive as Smith et al. describe performing searches with various datasets (abstract; page 455, col. 2, first paragraph; and page 457, col. 2, first paragraph) which represents a method of comparing datasets. Appellants argue that there is no reason to combine Reed et al. with bioinformatics references. This statement is found unpersuasive as Reed et al. deal with computers and data compression which are ideas that originated long before bioinformatics which also deals with computer methods. Instead of reinventing the wheel, so to speak, one of skill in the art in bioinformatics would search computer research references, as commonly seen in the reference section of bioinformatics articles. For example, the Smith et al. reference list includes a reference to Programming Perl,

by Wall et al. Appellants argue that modifying Smith et al. with Reed et al. to add compression would destroy the principal of operation. This statement is found unpersuasive as this is a mere allegation without factual support. Appellants argue that certain claim limitations are not found in the prior art. This statement is found unpersuasive as all of the limitations in the instant invention are present in the prior art, as clearly discussed in the 35 USC 103(a) rejection above. Appellants argue that the client CPU in Smith et al. consisting of a computer with a browser fails to include instructions for dividing datasets N and M. This statement is found unpersuasive as these limitations are discussed in the 35 USC 103(a) rejection above. Appellants' arguments are deemed unpersuasive for the reasons given above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Conclusion

It is respectfully submitted that the rejection of all claims in this application is correct and proper for the reasons noted in the rejections above and should be affirmed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28,

1993) (See 37 CFR §1.6(d)). The Central Fax Center number for official correspondence is (571) 273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carolyn Smith, whose telephone number is (571) 272-0721. The examiner can normally be reached Monday through Thursday from 8 A.M. to 6:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel, can be reached on (571) 272-0718.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instruments Examiner Tina Plunkett whose telephone number is (571) 272-0549.

Respectfully submitted,

Carolyn Smith, AU 1631

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